

### REMARKS

Claims 1-6 are amended and claims 11 and 12 are new. Claims 1-12 are pending in the present application. No new matter is introduced. Applicants request reconsideration of the present application in view of the foregoing amendments and the following remarks.

#### **I. Claim Rejections Under 35 U.S.C. § 112**

Claims 1-10 are rejected as being indefinite for not reciting a conductive material. Claims 1 and 4 are amended to include a conductive material. Accordingly, withdrawal of the indefiniteness rejection is respectfully requested.

#### **II. Claim Rejections Under 35 U.S.C. § 102**

##### A. Claims 1 and 3

Claims 1 and 3 are rejected as being anticipated by U.S. Patent No. 5,242,511, to Yokoyama et al. (hereinafter, "Yokoyama"). Claim 1 recites, a "conductive paste including ... at least one solvent selected from a group consisting of limonene,  $\alpha$ -terpinyl acetate, I-dihydrocarvyl acetate, I-menthone, I-perillyl acetate, I-carvyl acetate, and d-dihydrocarvyl acetate as a solvent." In contrast, the paste in Yokoyama does not include  $\alpha$ -terpinyl acetate, nor does Yokoyama disclose any of the other solvents recited in claim 1. Yokoyama discloses that a preferred solvent is selected from an alcohol such as  $\alpha$ -terpineol, and in the Office Action, the Examiner asserts that  $\alpha$ -terpineol is also known as  $\alpha$ -terpinyl acetate. *See* Office Action, p. 6 (emphasis added). Applicants respectfully disagree.  $\alpha$ -terpinyl acetate is an acetate ester, not an alcohol.  $\alpha$ -terpineol, on the other hand, is an alcohol, as stated in Yokoyama and recognized by the Examiner in the Office Action. The respective structures of these two different chemical compounds and their IUPAC names are different.

Therefore, one of ordinary skill in the art would readily recognize that  $\alpha$ -terpineol and  $\alpha$ -terpinyl acetate are different chemical compounds having different properties, and  $\alpha$ -terpineol is not just another name for  $\alpha$ -terpinyl acetate.

As discussed in the specification of the present application, forming an electrode layer using a conductive paste, which includes at least one of the particular solvents recited in claim 1, prevents generation of pinholes and cracks in the ceramic green sheet even where the latter is very thin. *See Applicants' Specification*, p. 15, ¶ [0043]. Since Yokoyama does not disclose or suggest any of the claimed solvents, claims 1 and 3 are not anticipated by Yokoyama. Accordingly, claim 1 and all claims that are dependent from claim 1, including claim 3, are allowable over Yokoyama.

### **III. Claim Rejections Under 35 U.S.C. § 103**

#### **A. Claim 2**

Claim 2 is rejected as being obvious over Yokoyama in view of U.S. Publication No. 2002/0056641, to December. It is asserted in the Office Action that Yokoyama discloses all the features of claim 2 except for the acrylic resin having a weight-average molecular weight equal to or larger than 450,000 and equal to or smaller than 900,000. However, as discussed above, Yokoyama does not disclose all the features of claim 2 because Yokoyama fails to disclose any of the solvents recited in claim 1, from which claim 2 is dependent.

It is further asserted that December discloses a second curable coating composition comprising an acrylic polymer having an acid number from about 1 to about 10 with a preferred weight average molecular weight of from about 5,000 to about 5,000,000, and that some of the solvents disclosed in December overlap with the solvents suggested by Yokoyama. On this basis it is asserted that it would have been obvious to one of ordinary skill in the art to arrive at the claimed conductive paste composition by modifying the invention in Yokoyama with the acrylic polymer of December.

In order for an Examiner to establish a *prima facie* case that an invention, as defined by a claim at issue, is obvious, the Examiner must: (1) show some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine the reference teachings; (2) there must be a reasonable expectation of success; and (3) the prior art reference (or the combined

references) must teach or suggest all the claim limitations. MPEP § 2142. However, as discussed above, Yokoyama fails to disclose a conductive paste that includes  $\alpha$ -terpinyl acetate.

Furthermore, there is no teaching, suggestion, or motivation for the proposed modification to Yokoyama to arrive at the claimed conductive paste of claim 2. The mere fact that the references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination or predictability of the results. MPEP § 2143.01. Here, the fact that the molecular weight disclosed in December could be combined with the features in Yokoyama does not render the resultant combination obvious because there is no suggestion of the desirability for such a combination or predictability of preventing generation of pinholes and cracks in a ceramic green sheet.

In the Office Action, modifying Yokoyama with December is reasoned to be obvious because December discloses solvents that overlap with solvents in Yokoyama. *See* Office Action, p. 8. However, the overlapping disclosure of solvents in Yokoyama and December, provided in different contexts, does not in and of itself provide any motivation for combining the references.

“The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant’s disclosure.” MPEP § 2143. In the present case, the cured coating composition in December is used in electrophoretic deposition, which is different than electrically conductive compositions such as that in Yokoyama. Accordingly, there is no reasonable expectation of success for the proposed combination in this case.

Furthermore, there is no apparent reason for one of ordinary skill in the art to modify Yokoyama with the features in December. *See KSR Int’l Co. v. Teleflex Inc., et al.*, 127 S.Ct. 1727, 1740-1741 (2007) (Often, it will be necessary for a court to look to interrelated teachings of multiple patents; the effects of demands known to the design community or present in the market place; and the background knowledge possessed by a person having ordinary skill in the art, all in order to determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue). Therefore, claim 2 is also allowable on its own merits.

B. Claims 4-8

Claims 4-8 are rejected as being obvious over Yokoyama in view of December, and further in view of U.S. Publication No. 2002/01552364., to Nishide et al. (hereinafter, “Nishide”). Claim 4 recites, *inter alia*, “a step of printing a conductive paste comprising ... at least one solvent selected from a group consisting of limonene,  $\alpha$ -terpinyl acetate, I-dihydrocarvyl acetate, I-menthone, I-perillyl acetate, I-carvyl acetate, and d-dihydrocarvyl acetate as a solvent...” As discussed above, Yokoyama and December fail to disclose any of the claimed solvents, and there is no suggestion or motivation to combine Yokoyama and December. Furthermore, Nishide does not fulfill the deficiencies of Yokoyama and December discussed above, and what is formed in Nishide by screen-printing the paste on the base green layers 11 are conductive films 5, 7 for wiring; not an electrode layer as claimed. Therefore, there is also no apparent reason, or suggestion or motivation, for one of ordinary skill in the art to modify Yokoyama or December with the teachings of Nishide.

In addition, the Office Action cites to paragraph [0106] of Nishide, stating that “the slurry of a second test green layer is [formed] by coating onto the first test green layer and then drying the slurry to form the coating.” Office Action, p. 10. However, when the cited portion is placed in the context provided in Nishide, it is apparent that Nishide merely discloses that the second test green layer is formed on the first test green layer in the experiments for obtaining Figure 3, showing the results of the shrinking rates of the first test green layers in the direction along the main surface thereof. *See* Nishide, ¶ [0104]. Therefore, Nishide does not disclose or suggest that the second test green layer is printed or laminated on the first green layer for manufacturing an electronic component such as a multi-layered unit for a multi-layered ceramic electronic component. Accordingly, claim 4, and dependent claims 5-10, which are dependent from claim 4, are allowable.

C. Claims 9 and 10

Claims 9 and 10 are rejected as being obvious over Yokoyama in view of December, and further in view of Nishide and JP 09-124771, to Kobayashi. Since claim 4 is

allowable as elaborated above, claims 9 and 10 are allowable at least for being dependent from claim 4.

#### **IV. Provisional Double-Patenting Rejection**

The Examiner has entered a provisional double-patenting rejection over co-pending Application No. 10/582,994 directed to a dielectric paste. In entering this rejection, it is reasoned that both applications contain identical paste compositions and methods of manufacturing a conductive paste comprising the claimed solvents. However, independent claims 1 and 4 are amended to include a conductive material, and Application No. 10/582,994 claims a paste and a method of manufacturing a dielectric paste. Accordingly, the claims of the present application cannot be obvious over the claims in Application No. 10/582,994. Therefore, withdrawal of the provisional double-patenting rejection is respectfully requested.

#### **V. Conclusion**

All of the claims remaining in the application are now allowable. Favorable consideration and a Notice of Allowance are earnestly solicited.

The Director is authorized to charge any additional fees due by way of this Amendment, or credit any overpayment, to our Deposit Account No. 19-1090.

Respectfully submitted,  
SEED Intellectual Property Law Group PLLC

/Nima A. Seyedali/  
Nima A. Seyedali  
Registration No. 61,293

DVC/NAS:jrh

701 Fifth Avenue, Suite 5400  
Seattle, Washington 98104  
Phone: (206) 622-4900  
Fax: (206) 682-6031  
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